Global Warming: Utah's climate shift would touch all species

By Tom Wharton
The Salt Lake Tribune

Val Bachman, Division of Wildlife Resources supervisor of Ogden Bay, who usually works outdoors, catches up on paperwork during a recent rainstorm. Bachman says global warming is already effecting Utah's wildlife. (Al Hartmann/The Salt Lake Tribune)

Having spent 35 years on the Great Salt Lake and its surrounding marshes as a student and biologist studying everything from pelicans to pintails, Val Bachman is a keen observer of nature. He has seen floods and droughts, and watched how those changes have affected the birds on one of the Western Hemisphere's key waterfowl and shorebird habitats.

What the Division of Wildlife Resources biologist has observed has convinced him that global warming is a reality already affecting Utah.

"We've had some awfully significant cycles on the Great Salt Lake," said Bachman, the longtime Ogden Bay Waterfowl Management Area superintendent. "The extremes seem to be getting closer together. We've had some real wet periods and real dry periods."

In Utah, the consequences of warming could go well beyond the birds of the Great Salt Lake. Researchers are concerned about animals including trout and deer. And that, in turn, could pose a serious snag to the state's 517,000 anglers, 198,000 hunters and 515,000 wildlife watchers who contribute millions of dollars to the Utah economy.

Great Salt Lake: Still, perhaps the biggest question regarding wildlife in Utah and global warming revolves around the Great Salt Lake and its marshes.

The lake is a stopping point for millions of migrating birds that rely on its marshes and abundant brine shrimp for survival.

Bachman says winters on the lake are getting warmer.

"We never saw certain species in the winter that are now common," he said, citing great blue herons as an example. "It's very subtle, but it seems to me that more and more bird [species] are wintering here."

That, too, has its consequences. Bachman said when the winter is extremely harsh, every 1 in 10 years or so, it can be devastating to birds such as barn owls

that have been lulled farther north by the milder weather only to die by the hundreds when heavy snow flies.

Frederic Wagner, a professor emeritus of the Department of Forest, Range and Wildlife Science at Utah State University, said models show an increase in Great Basin precipitation. If that holds true, the extra moisture could increase the size of the Great Salt Lake to the point where most freshwater marshes would be lost to saltwater, as was the case during the floods of the mid-1980s.

Wayne Wurtsbaugh, a professor of aquatic watershed and earth resources at Utah State University and an expert on Great Salt Lake brine shrimp, has the opposite worry. He said global warming, coupled with intense pressure to develop all the water going into the Great Salt Lake, might dry it up.

A recent National Wildlife Federation report called "Change the Forecast for Wildlife" offered a similar scenario. It said increased evaporation and reduced freshwater inflow could raise the lake's salinity levels and reduce critical stopover habitat for waterfowl and other migratory birds.

Brine shrimp, an important food for some bird species, could decline as a result of flooding and reduced salinization or drought.

Great Salt Lake birds also face the effects of global warming in others areas from which they migrate, from the tundra of Alaska and Canada to the prairie potholes of North Dakota.

"As those areas become drier, the number of ponds decrease and production drops off," said National Wildlife Federation biologist Doug Inkley. "That occurs naturally, but projections in the future show that by the year 2050, we could have a 69 percent decline in waterfowl. Climate change outside of Utah will have an effect on Utah's wildlife via migratory birds."

Research start: The most complete study on the effects of global warming in Utah and the region was a report issued in February 2003 called *Preparing for a Changing Climate*. Researchers theorized that animals with specific habitat needs would see major reductions or even extinctions, while fish and wildlife able to adapt to a wide variety of habitats and climates might not be adversely affected and, in some cases, could even benefit from warming.

This report was based on the premise of the state becoming warmer and wetter, although not all agree on the latter part of that scenario. "Each species has its own unique requirements and will respond uniquely," said USU's Wagner. "It's complicated as hell."

But Wagner sees at least one notable trend: Birds, fish and mammals that have specialized habitat requirements are most likely to be vulnerable to climate

changes.

Studies show that an animal such as the pika, a small mammal that lives high in mountain slopes such as the Uintas, could face trouble - if not extinction - if temperatures begin to warm and its habitat shrinks.

Another Utah inhabitant, the yellow-bellied marmot, might emerge a month earlier from hibernation because of warmer temperatures, only to have trouble finding something to eat because plants it feeds on have not yet emerged.

Wildlife recreation issues: One of the biggest warming blows to recreation that is based on Utah wildlife could be fishing for cold-water species, including trout, especially natives such as Bonneville and Colorado cutthroat.

"Earlier springs, shorter winters and reduced snowfall are likely to create earlier runoff in the spring," said Jack Williams, a biologist for Trout Unlimited.

As temperatures rise, so will water temperatures, especially in the summer, said Wagner. In some cases, that could reduce trout habitat by 50 percent. Trout also would be vulnerable to predators and could be pushed out by warm-water species, such as bass.

Questions and action: Biologists with the Utah Division of Wildlife Resources worry about global warming but remain more focused on existing habitat problems.

"Until we know what the possible impacts are, I don't know how we could address them," said Carmen Bailey, an amphibian specialist with the DWR. "Through time, things will be more specific. In the meantime, we have to address immediate impacts."

Alan Clark, the state wildlife agency's wildlife section chief, said that the biggest problem with trying to plan for global warming and its effect on wildlife is that the climate models are too general.

The agency reacts more to short-term factors, such as what weather forecasters predict a year out, Clark said, and even those can be wildly off the mark. He said even predictions for the coming year are only about 55 percent accurate.

"We have not tried to adjust our management programs to talk about global warming," he said. "As soon as someone gives us a good model on what will happen to vegetation, we will."

Still, the issue of global warming is considered so important among wildlife policymakers that the Association of Fish and Wildlife Agencies, which includes all 50 states and the Canadian provinces, has established a subcommittee to

study the issue.

Inkley, of the National Wildlife Federation, said he understands why state wildlife agencies have been slow to begin studying the effects of global warming.

"Wildlife agencies have a tremendous workload conserving wildlife," he said. "They have to worry about urbanization, agriculture and the management of hunting. Global warming is another issue that seemingly doesn't present a crisis today, but it is already having an effect in the lower 48 states."

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